**Cells (Part 2) Study Guide**

**Photosynthesis**

1. Write or draw the **chemical equation** for photosynthesis. (What Goes In and Comes Out?)

2. Draw a picture to show the **cell part** where photosynthesis happens. (Be sure to label it.)

3. Explain **why** plants do photosynthesis. (What are they really trying to make?)

**Respiration**

4. Write or draw the **chemical equation** for respiration. (What Goes In and Comes Out?)

5. Draw a picture to show the **cell part** where respiration happens. (Be sure to label it.)

6. Explain **why** cells do respiration. (What are they really trying to make?)

**Photosynthesis-Respiration Cycle**

7. Imagine the sun stopped shining tomorrow. Explain **what** you think would happen and **why**. (Be as specific as possible, keeping the photosynthesis-respiration cycle in mind.)

**Specialized Cells**

Imagine you are a passenger on the magic school bus with Ms. Frizzle! You are shrunk to explore the inside of the dead body from mystery cells to try and find more of the invading cells we saw.

Describe **TWO** types of body cells you might find as you investigate.

8. What do they look like? (Describe with words and/or draw pictures)

a.

b.

9. What is their job?

a.

b.

10. Explain why these cells are good at doing their job.

a.

b.

11. Explain how they are similar and/or different from each other.

Similar:

Different:

**Levels of Organization**

“**It’s Alive!!!”**

You are an “inventor” working in a lab in large castle somewhere in the dark European countryside. Your neighbors all think you are crazy, but you know you are a genius on the verge of one of the greatest discoveries known to mankind!!! Your name is not important, but it sounds a little bit like “Spankinshtein.” You are working on creating multicellular life in the lab. Being a super-genius, you know that you must start with tiny living things and combine them until you eventually have a whole living organism.

**Using the work bank and template below, describe the steps you would take to construct your monster… uh, I mean your living thing. ☺**

**Word Bank: Organ Tissue Organism Cell Organ System**

1. I will start with the smallest unit of life, the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. Next, I will put some of these \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_s together to make \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. Then, I will take all of this \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and put it together to make an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
4. Once I have multiple \_\_\_\_\_\_\_\_\_\_\_\_s that work together, I will have an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
5. Finally, I will use many \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_s to build one \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

This will be my very own living thing! I just hope it is friendly…but what could go wrong ;)

**Alternate opening scene:**

You walk to your cabinet to find some small units of life. You open the cabinet and SCREAM!!!! You are out of cells! ☹ You know you put cells on your Mad Scientist shopping list, but somehow you are out. Since you are no quitter, you head to the store to buy more, but they are out too! However, they do have ATOMS. Explain how you can use these atoms to make yourself some cells.

1. I will take my atoms and combine them to form \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_s.
2. Then I will combine these \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_s to form \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_s.
3. Finally, I will use many \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_s and a few other things, like cytoplasm, to form some small units of life…cells! Now I can get back to creating that multicellular organism that will help me take over the world! Hahahahahahahaha…